Computed tomography (CT), a new approach to resolving homologies between extant and fossil fruits of *Pleiogynium* (Anacardiaceae)

TALK IN SESSION S6

Rozefelds, Andrew[1] *[andrew.rozefelds@qm.qld.gov.au]; Dettmann, Mary*[1]*; Clifford, Trevor*[1]*; Hocknull, Scott*[1]

[1]*Queensland Museum, Brisbane (Australia)*

A comparative study of living fruits of *Pleiogynium* and fossil fruits considered to belong to the genus was undertaken using traditional sectioning techniques and dual energy X-ray computed tomography (CT). These studies demonstrate that phosphatised fossils from the Oligocene-Miocene Dunsinane Site at Riversleigh and silicified fossils from the Oligocene Glencoe Site, in Queensland are referable to *Pleiogynium*. CT scanning allowed the internal morphology of the fruits of phosphatised, silicified and modern fruits to be compared. The Riversleigh material (*Pleiogynium wannanii* Rozefelds, Clifford & Dettmann sp. nov.) is very similar to extant *P. timoriense* (DC.) Leenh. Both possess locules that in the vertical axial plane are sub-reniform in shape and enclosed by a two-layered endocarp, the inner layer woody and resistant to decay, the outer of fibres and parenchyma, surrounded by a mesocarp of fibres and sclereids and a parenchymatous exocarp. The outer mesocarp is sculpted by vertically elongate depressions situated at the dorsal surface of each locule; erosion of the mesocarp and outer endocarp provide passage for emergence of the embryo's radicle on germination. Discrete opercula are not evident in the fruit wall. The silicified material from Glencoe (*P. parvum* Rozefelds, Clifford & Dettmann sp. nov.) is smaller in all its parts, and has locules that are ovoid in the vertical axial plane. The presence of *Pleiogynium* suggests rainforest communities that were dominated by rainforest taxa at Glencoe, or mixed open forest/rainforest at Riversleigh during Oligocene-Miocene times. A fossil fruit described as *Pleiogynium mitchellii* Collinson, Manchester and Wilde from the Eocene Messel Quarry in Germany is not considered to belong in the genus, as evidence of elongate depressions on the dorsal surface of the locules has not been demonstrated conclusively, and its internal morphology/anatomy differs from that of extant and fossil species of *Pleiogynium*; it therefore is considered to have uncertain affinities and cannot be referred with confidence to an extant family.

Holocene wood fossils from the "Caldera de Taburiente" (Canary Islands, Spain)

POSTER IN SESSION S27

Rubiales, Juan Manuel[1] *[jm.rubiales@upm.es]; Díez-Herrero, Andrés*[2]*; De Nascimento, Lea*[3]*; Fernández Palacios, José María*[3]

[1]*Universidad Politecnica de Madrid, Madrid (Spain)*
[2]*Instituto Geológico y Minero de España, Madrid (Spain)*
[3]*University of La Laguna, Canary Islands (Spain)*

The past vegetation history of the Canary Islands has been revealed as extraordinarily surprising when comparing past data with the current vegetation distribution. However, as several factors restrict the occurrence of palaeoecological sites in these islands, the Quaternary vegetation history of part of the archipelago (i.e. the western Islands) still remains fairly unknown. Due to the intense geomorphological dynamics of the Barranco de Taburiente gorge, (La Palma, Canary Islands), subfossil organic layers have been exposed in its riverbanks and 39 woody macrofossils have been recovered and analysed. Radiocarbon dating indicates that the samples recovered in the three sites along the gorge date back to the late Holocene. Moreover, wood anatomical analysis points out that *Pinus canariensis*, an endemic pine species of the Canarian Islands, is the only tree species detected. The results show the past importance of the interactions between geomorphological events and vegetation dynamics in the National Park and suggest that forests of Canarian pine may have long been dominant and stable in the landscapes of the Caldera de Taburiente